TSMC-98-615CCC

February 9, 2004

To: Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Fr: George O. Saile, Reg. No. 19,572
28 Davis Avenue
Poughkeepsie, N.Y. 12603

Subject: Serial No. 10/733,722 12/11/03

S.L. Shue et al.

IMPROVED SIDEWALL COVERAGE FOR COPPER DAMASCENE FILLING

INFORMATION DISCLOSURE STATEMENT

Enclosed is Form PTO-1449, Information Disclosure Citation In An Application.

The following Patents and/or Publications are submitted to comply with the duty of disclosure under CFR 1.97-1.99 and 37 CFR 1.56.

CERTIFICATE OF MAILING

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on February 17, 2004.

Stephen B. Ackerman, Reg.# 37761

Signature/Date 2/17/04

U.S. Patent 5,316,974 to Crank, "Integrated Circuit Copper Metallization Process using a Lift-Off Seed Layer and a Thick-Plated Conductor Layer", teaches limiting the seed layer to the bottom of the trench so that the filler plug grows (by electroplating) from the bottom up and not from the vertical sides, thereby avoiding void formation.

U.S. Patent 5,674,787 to Zhao et al., "Selective Electroless Copper Deposited Interconnect Plugs for ULSI Applications", discloses a method for utilizing electroless copper deposition to selectively form encapsulated copper plugs to conductive regions on a semiconductor.

U.S. Patent 5,677,244 to Venkatraman, "Method of Alloying an Interconnect Structure with Copper", discloses doping aluminum with copper by first laying down an agglomerated copper film, then depositing the aluminum copper then heating so as to diffuse the copper islands throughout the aluminum.

U.S. Patent 5,814,557 to Venkatraman et al., "Method of Forming an Interconnect Structure", describes a process for filling the trench/hole of a damascene structure by depositing two different conductors one after the other.

Sincerely,

Stephen B. Ackerman, Reg. #37761

Form PTO-1449

INFORMATION DISCLOSURE CITATION IN AN APPLICATION

(Use several sheets if necessary)

Docket Number (Optional)	Application Number
TSMC-98-615CCC	10/733,722
Applicant: S.L. Shue et al.	
Filing Date: 12/11/03	Group Art Unit:

U. S. PATENT DOCUMENTS

EXAMINER INITIAL	DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
	5,674,787	10/7/97	Zhao et al.	437	230	1/16/96
	5,677,224	10/14/97	Venkatraman	437	198	5/20/96
	5,814,557	9/29/98	Venkatraman et al.	438	622	5/20/96
	5,316,974	5/31/94	Crank	437	190	4/30/90

FOREIGN PATENT DOCUMENTS

	DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	Translation YES	Translation NO

OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)

EXAMINER	DATE CONSIDERED

EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP § 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to the applicant.